

ABSTRACT OF THE DISCLOSURE

In a manufacturing process of a semiconductor device using a substrate having low heat resistance, such as a glass substrate, there is provided a method of efficiently carrying out crystallization of a semiconductor film and gettering treatment of a catalytic element used for the crystallization by a heating treatment in a short time without deforming the substrate. A heating treatment method of the present invention is characterized in that a light source is controlled in a pulsed manner to irradiate a semiconductor film, so that a heating treatment of the semiconductor film is efficiently carried out in a short time, and damage of the substrate due to heat is prevented.